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Notice of Allowability	Application No.	Applicant(s)	
	10/657,969	ERICKSON ET AL.	
	Examiner	Art Unit	
	Jeff H. Aftergut	1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment dated 6-29-06.
2. ☒ The allowed claim(s) is/are 1-35.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

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| <ol style="list-style-type: none"> 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____ |
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EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Nicholas Gallo on 8-4-06.

The application has been amended as follows:

The claims have been amended as follows:

1. (currently amended) An apparatus for layup of a composite structure of a honeycomb core sandwich panel having a generally flat side, the apparatus comprising:
a tool defining a generally planar layup surface for receiving the composite structure thereon, the layup surface defining an inner portion generally corresponding to a desired contour of the side of the composite structure and a grip feature disposed ~~in~~ on the layup surface and extending at least partially around the inner portion.

wherein the grip feature is a grip groove disposed in the layup surface, the grip groove defining a retaining surface configured to retain the composite structure in a predetermined configuration during manufacture, and the grip groove having a tapering width such that a width of the grip groove at a top of the groove is greater than a width of the grip groove at the bottom of the groove.

2. (original) An apparatus according to Claim 1 wherein the grip feature extends continuously around the inner portion of the layup surface.

3. (original) An apparatus according to Claim 1 wherein the retaining surface is generally perpendicular to the layup surface and defines an edge with the layup surface, the retaining surface and the edge configured to engage the composite structure.

4. (previously presented) An apparatus according to Claim 1 wherein the grip feature defines a bottom portion extending outward from the retaining surface to a periphery of the tool.

5. (original) An apparatus according to Claim 1 wherein the grip feature defines a depth of between about 0.1 inch and 0.5 inch.

6. (original) An apparatus according to Claim 1 wherein the grip feature defines a boundary of the inner portion having a shape generally corresponding to the desired shape of the composite structure.

7. (original) An apparatus according to Claim 1 wherein the layup surface defines an outer peripheral portion outward of the inner portion and wherein the grip

feature is a grip groove disposed in the layup surface and defining a boundary between the inner portion and the outer peripheral portion of the layup surface.

8. (original) An apparatus according to Claim 7 wherein the grip groove defines a tapered portion extending at least partially between the retaining surface and the outer peripheral portion.

9. (previously presented) A method for retaining a composite structure of a honeycomb core sandwich panel having a generally flat side during manufacture thereof, the method comprising:

providing a tool having a generally planar layup surface for receiving the composite structure thereon, the layup surface having an inner portion and a grip feature defining a retaining surface extending at least partially around the inner portion;

assembling on the layup surface of the tool a composite preform in the shape of the composite structure, the preform having at least one resinous laminate and at least two tiedown plies; and

adhering at least one of the tiedown plies to the tool with a film adhesive applied at the grip feature such that the tiedown ply is retained by the grip feature in a predetermined configuration,

wherein the film adhesive is characterized by a cure temperature lower than a cure temperature of the resin of the laminate.

10. (original) A method according to Claim 9 wherein said providing step comprises forming the grip feature to extend continuously around the inner portion of the layup surface.

11. (original) A method according to Claim 9 wherein said providing step comprises forming the retaining surface generally perpendicular to the layup surface to define an edge with the inner portion of the layup surface, such that the retaining surface and the edge are configured to retain the composite structure.

12. (original) A method according to Claim 9 wherein said providing step comprises forming the grip feature to define a depth of between about 0.1 inch and 0.5 inch.

13. (original) A method according to Claim 9 wherein said providing step comprises forming the layup surface to define an outer peripheral portion outward of the inner portion and forming the grip feature as a grip groove disposed in the layup surface and defining a boundary between the inner portion and the outer peripheral portion of the layup surface.

14. (original) A method according to Claim 9 wherein said assembling step comprises providing the laminate including bismaleimide matrix resin.

15. (original) A method according to Claim 9 wherein said assembling step comprises providing a honeycomb core.

16. (original) A method according to Claim 15 wherein said assembling step comprises providing a tiedown ply in contact with the core.

17. (original) A method according to Claim 9 further comprising providing a film adhesive between the tiedown plies.

18. (original) A method according to Claim 9 further comprising heating the composite preform to a first temperature between the cure temperature of the film adhesive and the cure temperature of the resin in the laminate, and subsequently heating the composite preform to a temperature at least as high as the cure temperature of the resin, such that the film adhesive is cured before the resin is melted.

19. (original) A method according to Claim 9 further comprising trimming the preform along a trim line inward of the grip feature to form the composite structure.

20. (new) A method according to Claim 9 wherein said providing step comprises providing the grip feature as a grip groove disposed in the layup surface, the grip groove defining a retaining surface configured to retain the composite structure in a predetermined configuration during manufacture, and the grip groove having a tapering

width such that a width of the grip groove at a top of the groove is greater than a width of the grip groove at the bottom of the groove.

21. (new) A method for retaining a composite structure during manufacture thereof, the method comprising:

providing a tool having a layup surface for receiving the composite structure thereon, the layup surface having an inner portion and a grip feature defining a retaining surface extending at least partially around the inner portion;

assembling on the layup surface of the tool a composite preform in the shape of the composite structure, the preform having at least one resinous laminate and at least two tiedown plies, such that the grip feature receives at least one of the tiedown plies;

adhering at least one of the tiedown plies to the grip feature such that the tiedown ply is retained by the grip feature in a predetermined configuration;

curing the resin of the laminate to form the composite structure; and

after said curing step, removing the composite structure from the layup surface.

22. (new) A method according to Claim 21 wherein said providing step comprises forming the grip feature to extend continuously around the inner portion of the layup surface.

23. (new) A method according to Claim 21 wherein said providing step comprises forming the retaining surface generally perpendicular to the layup surface to define an edge with the inner portion of the layup surface, such that the retaining surface and the edge are configured to retain the composite structure.

24. (new) A method according to Claim 21 wherein said providing step comprises forming the grip feature to define a depth of between about 0.1 inch and 0.5 inch.

25. (new) A method according to Claim 21 wherein said providing step comprises forming the layup surface to define an outer peripheral portion outward of the inner portion and forming the grip feature as a grip groove disposed in the layup surface

and defining a boundary between the inner portion and the outer peripheral portion of the layup surface.

26. (new) A method according to Claim 21 wherein said assembling step comprises providing the laminate including bismaleimide matrix resin.

27. (new) A method according to Claim 21 wherein said assembling step comprises providing a honeycomb core.

28. (new) A method according to Claim 27 wherein said assembling step comprises providing a tiedown ply in contact with the core.

29. (new) A method according to Claim 21 further comprising providing a film adhesive between the tiedown plies.

30. (new) A method according to Claim 21 wherein said adhering step comprises adhering the at least one of the tiedown plies to the tool with a film adhesive applied at the grip feature, wherein the film adhesive is characterized by a cure temperature lower than a cure temperature of the resin of the laminate.

31. (new) A method according to Claim 30 wherein said curing step comprises heating the composite preform to a first temperature between the cure temperature of the film adhesive and the cure temperature of the resin in the laminate, and subsequently heating the composite preform to a temperature at least as high as the cure temperature of the resin, such that the film adhesive is cured before the resin is melted.

32. (new) A method according to Claim 21 further comprising trimming the preform along a trim line inward of the grip feature to form the composite structure.

33. (new) A method according to Claim 21 wherein said providing step comprises providing the grip feature as a grip groove disposed in the layup surface, the grip groove defining a retaining surface configured to retain the composite structure in a predetermined configuration during manufacture, and the grip groove having a tapering

width such that a width of the grip groove at a top of the groove is greater than a width of the grip groove at the bottom of the groove.

34. (New) An apparatus for layup of a composite structure, the apparatus comprising:

a tool for receiving the composite structure thereon, the layup surface defining an inner portion generally corresponding to a desired contour of the side of the composite structure and a grip feature disposed in the layup surface and extending at least partially around the inner portion,

wherein the grip feature is a grip groove disposed in the layup surface, the grip groove defining a retaining surface configured to retain the composite structure in a predetermined configuration during manufacture, and the grip groove having a tapering width such that a width of the grip groove at a top of the groove is greater than a width of the grip groove at the bottom of the groove.

35. (New) A method for retaining a composite structure during manufacture thereof, the method comprising:

providing a tool having a layup surface for receiving the composite structure thereon, the layup surface having an inner portion and a grip feature defining a retaining surface extending at least partially around the inner portion;

assembling on the layup surface of the tool a composite preform in the shape of the composite structure, the preform having at least one resinous laminate and at least one tiedown ply;

adhering the at least one tiedown ply to the grip feature such that the tiedown ply is retained by the grip feature in a predetermined configuration;

curing the resin of the laminate to form the composite structure; and

after said curing step, removing the composite structure from the layup surface.

2. The following is an examiner's statement of reasons for allowance: None of the prior art of record taught the specified retaining feature as defined in the claims. The closest prior art references to Engwall '553, '358 and 883 suggested that one skilled in the art would have provided a groove on a tool used in the curing of a honeycomb structure, however the while the groove therein has a specified shape it is a dovetail

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shape and not a tapered shape and one would not have provided the groove arrangement of Engwall '553, '358 or 883 with the claimed tapered configuration as the reference clearly specified that the groove was provided with a dovetail shape in order to provide a means to retain the sacrificial material in the dovetail groove therein.

Regarding the method claims, note that the composite material is not retained in the groove of Engwall '553, '358 or 883 and that applicant's arguments regarding the prior art references to Corbett et al and Foster et al (note that the method claims require the tie down ply and that there is no reason to incorporate the specified retaining means of Foster et al in Corbett et al. Note that the reference to Brussee has been overcome as the device claims require a planar structure with the specified groove arrangement and one would not look to the reference of Brussee as a tooling as the grooved component is in fact part of the finished assembly and is not removed from the composite after curing.


Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff H. Aftergut whose telephone number is 571-272-1212. The examiner can normally be reached on Monday-Friday 7:15-345 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Jeff H. Aftergut
Primary Examiner
Art Unit 1733

JHA
August 5, 2006